Appendix B
The ROW Part of the MCH Model

April 27, 2012

Table B.1
The Countries and Variables in the MCF Model

Quarterly Countries			**Local Currency**	**Trade Share Equations Only**		
1	US	United States	U.S. Dollar (mil.)	40	TU	Turkey
2	CA	Canada	Can. Dollar (mil.)	41	PD	Poland
3	JA	Japan	Yen (bil.)	42	RU	Russia
4	AU	Austria	Euro (mil.)	43	UE	Ukraine
5	FR	France	Euro (mil.)	44	EG	Egypt
6	GE	Germany	Euro (mil.)	45	IS	Israel
7	IT	Italy	Euro (mil.)	46	KE	Kenya
8	NE	Netherlands	Euro (mil.)	47	BA	Bangladesh
9	ST	Switzerland	Swiss Franc (bil.)	48	HK	Hong Kong
10	UK	United Kingdom	Pound Sterling (mil.)	49	SI	Singapore
11	FI	Finland	Euro (mil.)	50	VI	Vietnam
12	AS	Australia	Aust. Dollar (mil.)	51	NI	Nigeria
13	SO	South Africa	Rand (mil.)	52	AL	Algeria
14	KO	Rep. of Korea	Won (bil.)	53	IA	Indonesia
Annual Countries				54	IN	Iran
15	BE	Belgium	Euro (mil.)	55	IQ	Iraq
16	DE	Denmark	Den. Kroner (bil.)	56	KU	Kuwait
17	NO	Norway	Nor. Kroner (bil.)	57	LI	Libya
18	SW	Sweden	Swe. Kroner (bil.)	58	UA	United Arab Emirates
19	GR	Greece	Euro (mil.)	59	AO	All Other
20	IR	Ireland	Euro (mil.)			
21	PO	Portugal	Euro (mil.)			
22	SP	Spain	Euro (mil.)			
23	NZ	New Zealand	N.Z. Dollar (mil.)			
24	SA	Saudi Arabia	Riyals (bil.)			
25	VE	Venezuela	Bolivares (bil.)			
26	CO	Colombia	Col. Pesos (bil.)			
27	JO	Jordan	Jor. Dinars (mil.)			
28	SY	Syria	Syr. Pound (mil.)			
29	ID	India	Ind. Rupee (bil.)			
30	MA	Malaysia	Ringgit (mil.)			
31	PA	Pakistan	Pak. Rupee (bil.)			
32	PH	Philippines	Phil. Peso (bil.)			
33	TH	Thailand	Baht (bil.)			
34	CH	China	Yuan (bil.)			
35	AR	Argentina	Arg. Peso (mil.)			
36	BR	Brazil	Reais (mil.)			
37	CE	Chile	Chi. Peso (bil.)			
38	ME	Mexico	New Peso (mil.)			
39	PE	Peru	Nuevos Soles (mil.)			

• The countries that make up the EMU, denoted EU in the model, are AU, FR, GE, IT, NE, FI, BE, IR, PO, SP, GR. (GR begins in 2001.) (Luxembourg, which is also part of the EMU, is not in the model.)
• Prior to 1999:1 the currency is Schillings for AU, Fr. Francs for FR, DM for GE, Lira for IT, Guilders for NE, Markkaa for FI, Bel. Francs for BE, Irish Pounds for IR, Escudes for PO, Pesetas for SP, and Drachmas for GR (prior to 2001:1). The units are in euro equivalents. For example, in 1999:1 the Lira was converted to the euro at 1936.27 Liras per euro, and 1936.27 was used to convert the Lira to its euro equivalent for 1998:4 back.
• The NIPA base year is 2005 for all countries except BE (2009), NO (1995), IR (2009), PO (2006), SP (2000), NZ (1995), ME (2003).

Table B.2
The Variables for a Given Country in Alphabetical Order

Variable	Eq. No.	Description
a_{ij}	L-1	Share of i's merchandise exports to j out of total merchandise imports of j. [See below]
A	I-7	Net stock of foreign security and reserve holdings, end of quarter, in lc. [$A_{-1} + S$. Base value of zero used for the quarter prior to the beginning of the data.]
C	2	Personal consumption in constant lc. [OECD data or IFS96F/PY]
E	9 or I-14	Exchange rate, average for the period, lc per $. [IFSRF]
EE	I-9	Exchange rate, end of period, lc per $. [IFSAE]
EX	I-2	Total exports (NIPA) in constant lc. [OECD data or (IFS90C or IFS90N)/ PY]
$EXDS$	exog	Discrepancy between NIPA export data and other export data in constant lc. [$EX - PX00(E00 \cdot X00\$ + XS)$.]
$E00$	exog	E in 2005, 2005 lc per 2005 $. [IFSRF in 2005]
F	10	Three-month forward exchange rate, lc per $. [IFSB]
G	exog	Government purchases of goods and services in constant lc. [OECD data or (IFS91F or IFS91FF)/PY] (Denoted GZ for countries CO and TH.)
H	9	Exchange rate, average for the period, lc per DM euro. [E/E_{GE}]
I	3	Gross fixed investment in constant lc. [OECD data or IFS93/PY]
IM	I-1	Total imports (NIPA) in constant lc. [OECD data or IFS98C/PY]
$IMDS$	exog	Discrepancy between NIPA import data and other import data in constant lc. [$IM - PM00(M + MS)$]
J	13	Total employment in millions. [OECD data or IFS67 or IFS67E or IFS67EY or IFS67EYC]
$JMIN$	I-13	Minimum amount of employment needed to produce Y in millions. [Y/LAM]
LAM	exog	Computed from peak-to-peak interpolation of $\log(Y/J)$.
$L1$	14	Labor force in millions. [OECD data]
M	1	Total merchandise imports (fob) in 2005 lc. [IFS71V/PM]
MS	exog	Other goods, services, and income (debit) in 2005 lc, BOP data. [((IFS78AED+IFS78AHD)E)/PM]
$M00\$A$	I-8	Merchandise imports (fob) from the trade share matrix in 2005 $. [See below]
$M00\$B$	exog	Difference between total merchandise imports and merchandise imports from the trade share matrix in 2005 $ (i.e., imports from countries other than the 44 in the trade share matrix). [$M/E00 - M00\$A$]
$M1$	6	Money supply in lc. [IFS34 or IFS34A.N+IFS34B.N or IFS35L.B or IFS39MAC or IFS59MA or IFS59MC]
NW	I-15	National Wealth in constant lc. [$NW_{-1} + I + V1 + EX - IM$. Base value of zero used for the quarter prior to the beginning of the data.]
PM	I-13	Import price deflator, 2005 = 1.0. [IFS75/100]
PMP	L-4	Import price index from DOT data, 2005 = 1.0. [See below]
$PM00$	exog	PM in the NIPA base year divided by PM in 2005.
POP	exog	Population in millions. [IFS99Z]
$POP1$	exog	Population of labor-force-age in millions. [OECD data]
$PSI1$	exog	[$(EE + EE_{-1})/2]/E$]
$PSI2$	exog	[PM/PMP]
$PW\$$	L-5	World price index, $/2005$. [See below]
PX	11	Export price index, 2005 = 1.0. [IFS74/100. If no IFS74 data for t, then $PX_t = PX\$_t(E_t/E00_t$, where $PX\$_t$ is defined next.]

Table B.2 (continued)

Variable	Eq. No.	Description
$PX\$$	I-16	Export price index, \$/2005\$, 2005 = 1.0. [$(E00 \cdot PX)/E$. If no IFS74 data at all, then $PX\$_t = PX_{USt}$ for all t. If IFS74 data only from t through $t+h$, then for $i > 0$, $PX\$_{t-i} = PX\$_t(PX_{USt-i}/PX_{USt}$ and $PX\$_{t+h+i} = PX\$_{t+h}(PX_{USt+k+i}/PX_{USt}$.
$PX00$	exog	PX in the NIPA base year divided by PX in 2005.
PY	5	GDP or GNP deflator, equals 1.0 in the NIPA base year. [OECD data or (IFS99B/IFS99B.P]
RB	8	Long term interest rate, percentage points. [IFS61]
RS	7	Three-month interest rate, percentage points. [IFS60 or IFS60B or IFS60C or IFS60L or IFS60P]
S	I-6	Total net goods, services, and transfers in lc. Current account balance. [See Table B.6] (Denoted SZ for countries CO and TH.)
$STAT$	exog	Statistical discrepancy in constant lc. [$Y - C - I - G - EX + IM - V1$]
T	exog	Time trend. [For quarterly data, 1 in 1952.1, 2 in 1952.2, etc.; for annual data, 1 in 1952, 2 in 1953, etc.]
TT	exog	Total net transfers in lc. [See Table B.7]
UR	I-10	Unemployment rate. [$(L1 - J)/L1$]
V	I-5	Stock of inventories, end of period, in constant lc. [$V_{-1} + V1$. Base value of zero was used for the period (quarter or year) prior to the beginning of the data.]
$V1$	I-4	Inventory investment in constant lc. [OECD data or IFS93I/PY]
W	not used	Nominal wage rate. [IFS65..C or IFS65A or IFS65EY or IFS65UMC]
X	I-3	Final sales in constant lc. [$Y - V1$] (Denoted XZ for country PE.)
XS	exog	Other goods, services, and income (credit) in 2005 lc. BOP data. [(E(IFS78ADD+IFS78AGD))/PX]
$X00\$$	L-3	Merchandise exports from the trade share matrix in 2005 \$. [See below]
$XX00\$_{ij}$	L-2	Merchandise exports from i to j in 2005\$. [See below]
Y	4	Real GDP or GNP in constant lc. [OECD data or IFS99B.P or IFS99B.R]
YS	exog	Potential value of Y. [From a peak-to-peak interpolation of $\log Y$.]
ZZ	I-12	Demand pressure variable. [$\log Y - \log YS$]

Construction of variables related to the trade share matrix:

The raw data are:

$XX\$_{ij}$	Merchandise exports from i to j in \$, $i, j = 1, ..., 58$ [DOT data. 0 value used if no data]
$X\$_i$	Total merchandise exports (fob) in \$. $i = 1, ..., 39$ [IFS70/E or IFS70D]

The constructed variables are:

$XX\$_{i59} =$	$X\$_i - \sum_{j=1}^{58} XX\$_{ij}, i = 1, ..., 39$
$XX00\$_{ij} =$	$XX\$_{ij}/PX\$_i, i = 1, ..., 39, j = 1, ..., 59$ and $i = 40, ..., 58, j = 1, ..., 58$
$M00\$A_i =$	$\sum_{j=1}^{58} XX00\$_{ji}, i = 1, ..., 58; M00\$A_{59} = \sum_{j=1}^{39} XX00\$_{j59}$
$a_{ij} =$	$XX00\$_{ij}/M00\$A_j, i = 1, ..., 39, j = 1, ..., 59$ and $i = 40, ..., 58, j = 1, ..., 58$
$X00\$_i =$	$\sum_{j=1}^{59} XX00\$_{ij}, i = 1, ..., 39; X00\$_i = \sum_{j=1}^{58} XX00\$_{ij}, i = 40, ..., 58$
$PMP_i =$	$(E_i/E00_i) \sum_{j=1}^{58} a_{ji} PX\$_j, i = 1, ..., 39$
$PW\$_i =$	$(\sum_{j=1}^{58} PX\$_j X00\$_j)/(\sum_{j=1}^{58} X00\$_j), i = 1, ..., 39$ An element in this summation is skipped if $j = i$. This summation also excludes the oil exporting countries, which are SA, VE, NI, AL, IA, IN, IQ, KU, LI, UA.

- Variables available for trade share only countries are $M00\$A$, $PX\$$, $X00\$$.
- lc = local currency
- IFSxxxxx = variable number xxxxx from the IFS data

Table B.2 (continued)
The EU Variables

Variable	Eq. No.	Description
E	9	Exchange rate, average for the period, euro per \$. [IFSRF]
PY	[ ]	GDP deflator. $[(\sum_{i=1}^{6} PY_i Y_i)/Y_{EU}$, where the summation is for $i =$ GE, AU, FR, IT, NE, FI.]
RB	8	Long term interest rate, percentage points. [IFS61]
RS	7	Three-month interest rate, percentage points. [IFS60]
Y	[ ]	Real GDP in constant euros. $[Y_{GE} + \sum_{i=1}^{5}[Y_i/(E00_i/E00_{GE})]$, where the summation is for $i =$ AU, FR, IT, NE, FI.]
YS	[ ]	Potential value of Y_{EU}. $[YS_{GE} + \sum_{i=1}^{5}[YS_i/(E00_i/E00_{GE})]$, where the summation is for $i =$ AU, FR, IT, NE, FI.]
ZZ	I-18	Demand pressure variable. $[\log Y_{EU} - \log YS_{EU}]$

Table B.3
The Equations for a Given Country

STOCHASTIC EQUATIONS

Eq.	LHS Variable	Explanatory Variables
1	$\log(IM/POP)$	cnst, $\log(IM/POP)_{-1}$, $\log(PY/PM)$, $\log[(C+I+G)/POP]$ [Total Imports (NIPA), constant lc]
2	$\log(C/POP)$	cnst, $\log(C/POP)_{-1}$, RS or RB, $\log(Y/POP)$ [Consumption, constant lc]
3	$\log I$	cnst, $\log I_{-1}$, $\log Y$, RS or RB [Fixed Investment, constant lc]
4	$\log Y$	$\log Y_{-1}$, $\log X$, $\log V_{-1}$ [Real GDP, constant lc]
5	$\log PY$	cnst, $\log PY_{-1}$, $\log PM$, ZZ, T [GDP Price Deflator, base year = 1.0]
6	$\log[M1/(POP \cdot PY)]$	cnst, $\log[M1/(POP \cdot PY)]_{-1}$ or $\log[M1_{-1}/(POP_{-1}PY)]$, RS, $\log(Y/POP)$ [Money Supply, lc]
7	RS	cnst, RS_{-1}, $100[(PY/PY_{-1})^4 - 1]$, ZZ, RS_{GE}, RS_{US} [Three-Month Interest Rate, percentage points]
8	$RB - RS_{-2}$	cnst, $RB_{-1} - RS_{-2}$, $RS - RS_{-2}$, $RS_{-1} - RS_{-2}$ [Long Term Interest Rate, percentage points]
9	$\Delta \log E$	cnst, $\log(PY/PY_{US} - \log E_{-1}$, $.25\log[(1 + RS/100)/(1 + RS_{US}/100)]$ [Exchange Rate, lc per \$] [For all countries but AU, FR, IT, NE, ST, UK, FI, BE, DE, NO, SW, GR, IR, PO, and SP]
9	$\Delta \log H$	cnst, $\log(PY/PY_{GE} - \log H_{-1}$, $.25\log[(1 + RS/100)/(1 + RS_{GE}/100)]$ [Exchange Rate, lc per DM] [For countries AU, FR, IT, NE, ST, UK, FI, BE, DE, NO, SW, GR, IR, PO, and SP]
10	$\log F$	$\log EE$, $.25\log[(1 + RS/100)/(1 + RS_{US}/100)]$ [Three-Month Forward Rate, lc per \$]
11	$\log PX - \log[PW\$(E/E00)]$	$\log PY - \log[PW\$(E/E00)]$ [Export Price Index, 2005 = 1.0]
13	$\Delta \log J$	cnst, T, $\log(J/JMIN)_{-1}$, $\Delta \log Y$, $\Delta \log Y_{-1}$ [Employment, millions]
14	$\log(L1/POP1)$	cnst, T, $\log(L1/POP1)_{-1}$, UR [Labor Force, millions]

Table B.3 (continued)

IDENTITIES

Eq.	LHS Variable	Explanatory Variables
I-1	$M =$	$(IM - IMDS)/PM00 - MS$ [Merchandise Imports, 2005 lc]
I-2	$EX =$	$PX00(E00 \cdot X00\$ + XS) + EXDS$ [Total Exports (NIPA), constant lc]
I-3	$X =$	$C + I + G + EX - IM + STAT$ [Final Sales, constant lc]
I-4	$V1 =$	$Y - X$ [Inventory Investment, constant lc]
I-5	$V =$	$V_{-1} + V1$ [Inventory Stock, constant lc]
I-6	$S =$	$PX(E00 \cdot X00\$ + XS) - PM(M + MS) + TT$ [Current Account Balance, lc]
I-7	$A =$	$A_{-1} + S$ [Net Stock of Foreign Security and Reserve Holdings, lc]
I-8	$M00\$A =$	$M/E00 - M00\$B$ [Merchandise Imports from the Trade Share Calculations, 2005 $]
I-9	$EE =$	$2PSI1 \cdot E - EE_{-1}$ [Exchange Rate, end of period, lc per $]
I-10	$UR =$	$(L1 - J)/L1$ [Unemployment Rate]
I-11	$JMIN =$	Y/LAM [Minimum Required Employment, millions]
I-12	$ZZ =$	$\log Y - \log YS$ [Demand Pressure Variable]
I-13	$PM =$	$PSI2 \cdot PMP$ [Import Price Deflator, 2005 = 1.0]
I-14	E	$E = H \cdot E_{GE}$ [Exchange Rate: lc per $] [Equation relevant for countries AU, FR, IT, NE, ST, UK, FI, BE, DE, NO, SW, GR, IR, PO, and SP only]
I-15	$NW =$	$NW_{-1} + I + V1 + EX - IM$ [National Wealth, constant lc]
I-16	$PX\$ =$	$(E00/E)PX$ [Export Price Index, $/2005$]

• From 1999:1 on for GE: $E_{GE} = E_{EU}$, $RS_{GE} = RS_{EU}$, and $RB_{GE} = RB_{EU}$. From 1999:1 on for an EU country i (except GE): $H_i = 1.0$, $RS_i = RS_{EU}$, and $RB_i = RB_{EU}$.
• $PX\$$ and $M00\$A$ are exogenous for trade share only countries.

Table B.3 (continued)

Equations that Pertain to the Trade and Price Links Among Countries

L-1	$a_{ij} =$	fraction of country i's exports imported by j. Computed from trade share equations [Trade Share Coefficients]
L-2	$XX00\$_{ij} =$	$a_{ij} M00\$A_j, i = 1, ..., 39, j = 1, ..., 59$ and $i = 40, ..., 58, j = 1, ..., 58$ [Merchandise Exports from i to j, 2005$]
L-3	$X00\$_i =$	$\sum_{j=1}^{59} XX00\$_{ij}, i = 1, ..., 39$
	$X00\$_i =$	$\sum_{j=1}^{58} XX00\$_{ij}, i = 40, ..., 58$ [Total Merchandise Exports, 2005$]
L-4	$PMP_i =$	$(E_i/E00_i) \sum_{j=1}^{58} a_{ji} PX\$_j, i = 1, ..., 39$ [Import Price Deflator, 2005 = 1.0]
L-5	$PW\$_i =$	$(\sum_{j=1}^{58} PX\$_j X00\$_j) / \sum_{j=1}^{58} X00\$_j), i = 1, ..., 39$ An element in this summation is skipped if $j = i$. This summation also excludes the oil exporting countries, which are SA, VE, NI, AL, IA, IN, IQ, KU, LI, UA. [World Price Index, $/2005$]

Trade Share Equations

• For each i, j equation, the left hand side variable is $\log(a_{ijt} + .00001)$. The three right hand side variables are the constant, $\log(a_{ijt-1} + .00001)$, and $PX\$_{it}/(\sum_{k=1}^{58} a_{kjt-1} PX\$_{kt})$, where the summation excludes the oil exporting countries, which are SA, VE, NI, AL, IA, IN, IQ, KU, LI, UA. Also, an element in the summation is skipped if $k = j$.

Linking of the Annual and Quarterly Data

• Quarterly data exist for all the trade share calculations, and all these calculations are quarterly. Feeding into these calculations from the annual models are predicted annual values of $PX\$_i$, $M00\$A_i$, and E_i. For each of these three variables the predicted value for a given quarter was taken to be the predicted annual value multiplied by the ratio of the actual quarterly value to the actual annual value. This means in effect that the distribution of an annual value into its quarterly values is taken to be exogenous.

• Once the quarterly values have been computed from the trade share calculations, the annual values of $X00\$_i$ that are needed for the annual models are taken to be the sums of the quarterly values. Similarly, the annual values of PMP_i and $PW\$_i$ are taken to be the averages of the quarterly values.

Table B.4
Coefficient Estimates and Test Results
for the ROW Equations

ρ = first order autoregressive coefficient of the error term.
† = variable is lagged one period.
Dummy variable coefficient estimates are not shown for GE and EU.
t-statistics are in parentheses.

Table B1: Coefficient Estimates for Equation 1

$$\log(IM/POP) = a_1 + a_2 \log(IM/POP)_{-1} + a_3 \log(PY/PM) + a_4 \log[(C + I + G)/POP)]$$

	a_1	a_2	a_3	a_4	ρ	SE	DW
Quarterly							
CA	-0.184	0.941	0.090	0.073	0.302	0.0289	2.04
	(-0.63)	(35.88)	(2.43)	(1.40)	(4.06)	1961.2–2011.3	
JA	-0.177	0.937	0.035	0.069	0.277	0.0348	2.07
	(-0.85)	(35.85)	(2.31)	(1.46)	(3.51)	1966.1–2011.3	
AU	-0.651	0.922	0.031	0.145		0.0289	1.89
	(-1.44)	(37.20)	(0.86)	(2.07)		1970.1–2011.1	
FR	-1.298	0.864	0.077	0.263		0.0266	1.73
	(-2.93)	(24.29)	(4.39)	(3.30)		1968.1–2010.4	
GE	0.057	0.988	0.032	0.005		0.0288	1.84
	(0.31)	(91.01)	(1.77)	(0.18)		1963.1–2011.2	
IT	-0.860	0.892	0.056	0.190		0.0350	1.80
	(-2.89)	(31.48)	(3.74)	(3.31)		1961.1–2011.2	
NE	-0.121	0.937	0.072	0.075		0.0225	1.89
	(-0.40)	(35.22)	(3.65)	(1.31)		1961.1–2011.2	
ST	-0.072	0.965	0.018	0.053		0.0252	2.18
	(-0.30)	(30.66)	(0.65)	(0.48)		1977.1–2011.2	
UK	-2.149	0.770	0.041	0.449		0.0296	1.73
	(-3.54)	(13.51)	(1.85)	(3.77)		1970.1–2011.2	
FI	-0.280	0.952	0.032	0.075		0.0547	2.53
	(-0.97)	(33.84)	(1.05)	(1.36)		1965.1–2011.3	
AS	-1.867	0.843	0.073	0.331		0.0375	1.47
	(-4.14)	(21.93)	(3.37)	(4.16)		1968.1–2011.3	
SO	-0.362	0.909	0.013	0.119		0.0713	1.81
	(-0.88)	(25.87)	(0.39)	(1.79)		1961.1–2010.4	
KO	-0.664	0.895		0.173		0.0506	1.85
	(-3.29)	(31.28)		(3.57)		1974.1–2011.3	
Annual							
BE	-0.405	0.822	0.297	0.214		0.0505	1.99
	(-0.30)	(7.42)	(3.16)	(0.92)		1962–2010	
DE	-1.386	0.811	0.044	0.414		0.0515	2.03
	(-1.87)	(10.63)	(0.40)	(2.16)		1962–2010	
NO	0.410	0.698	0.214	0.169		0.0526	1.67
	(0.95)	(4.97)	(2.92)	(0.98)		1962–2010	
SW	-0.311	0.950	0.024	0.103		0.0603	1.97
	(-0.31)	(9.07)	(0.26)	(0.39)		1965–2010	
GR	0.047	0.930	0.106	0.060		0.0777	1.76
	(0.04)	(10.75)	(1.01)	(0.33)		1962–2010	
IR	-2.265	0.782	0.105	0.438		0.0746	0.94
	(-1.54)	(7.24)	(0.98)	(1.82)		1968–2010	
PO	-1.527	0.248	0.505	0.829		0.0719	1.48
	(-2.56)	(1.99)	(5.62)	(5.33)		1962–2010	
SP	-2.224	0.646	0.306	0.536		0.0742	1.13
	(-1.35)	(6.14)	(3.97)	(2.10)		1962–2010	
NZ	-2.829	0.673	0.285	0.566		0.0730	1.84
	(-1.32)	(4.83)	(2.75)	(1.75)		1962–2010	
SA	-0.395	0.623		0.389		0.1514	1.12
	(-1.05)	(5.54)		(2.57)		1970–2010	
VE	-2.514	0.083		1.427		0.1302	1.12
	(-6.16)	(0.71)		(6.86)		1962–2010	
CO	-4.851	0.246	0.035	1.223		0.0857	1.39
	(-4.98)	(1.85)	(0.88)	(5.47)		1970–2010	
JO	-0.980	0.373		0.714		0.1046	1.01
	(-1.19)	(2.57)		(4.19)		1978–2007	

Table B1: Coefficient Estimates for Equation 1

	a_1	a_2	a_3	a_4	ρ	SE	DW
SY	-4.701	0.299	0.103	1.057		0.1253	1.36
	(-3.61)	(2.22)	(2.81)	(4.71)			1965–2009
ID	-1.050	0.835		0.415		0.1047	1.76
	(-1.93)	(8.40)		(2.02)			1962–2010
MA	-1.769	0.758		0.428		0.0944	1.52
	(-2.08)	(9.26)		(2.59)			1972–2010
PA	-0.971	0.426		0.581		0.0923	1.39
	(-2.71)	(3.46)		(3.73)			1974–2010
PH	-0.930	0.767		0.504		0.1626	2.08
	(-1.67)	(7.94)		(1.89)			1962–2010
TH	-0.988	0.727		0.465		0.1047	1.64
	(-3.03)	(9.04)		(3.34)			1962–2010
CH	-0.879	0.567		0.596		0.1135	1.39
	(-2.68)	(4.62)		(3.16)			1984–2010
BR	-2.715	0.758		0.479		0.1050	2.24
	(-0.83)	(4.66)		(1.17)			1995–2010
CE	-2.419	0.388		0.827		0.1078	1.23
	(-3.12)	(2.45)		(3.76)			1979–2010
ME	-2.912	0.817	0.299	0.423		0.1559	1.35
	(-1.79)	(11.15)	(2.16)	(2.16)			1962–2010
PE	-9.495			1.861		0.0757	0.98
	(-9.39)			(16.72)			1992–2010

Table B1: Test Results for Equation 1

	Lags	log PY	RHO	T	Stability			End Test		overid	
	p-val	p-val	p-val	p-val	AP	df	λ	p-val	End	p-val	df
Quarterly											
CA	0.000	0.405	0.000	0.079	21.89	5	5.382	0.896	1998.4		
JA	0.023	0.000	0.034	0.004	21.30	5	6.621	0.000	1998.3		
AU	0.962	0.000	0.000	0.001	27.06	4	5.173	1.000	1998.3		
FR	0.058	0.805	0.004	0.733	18.24	4	4.195	0.329	1998.3	0.000	5
GE	0.435	0.318	0.062	0.160	17.42	4	3.526	0.667	1998.4		
IT	0.093	0.795	0.000	0.017	10.32	4	3.369	1.000	1998.3	0.000	5
NE	0.108	0.644	0.494	0.007	4.13	4	1.923	0.465	1998.4	0.013	5
ST	0.222		0.117	0.002	9.59	4	1.547	0.000	1998.3		
UK	0.049	0.328	0.002	0.093	9.35	4	5.132	0.698	1998.3	0.004	5
FI	0.000	0.875	0.000	0.091	36.43	4	2.309	1.000	1998.3	0.000	4
AS	0.000	0.277	0.000	0.003	7.16	4	5.831	1.000	1998.2	0.000	6
SO	0.240		0.000	0.669	5.59	4	9.081	0.703	1998.3		
KO	0.687		0.000	0.001	18.42	3	3.760	0.396	1998.4		
Annual											
BE	0.307	0.769	0.910	0.002	32.18	4	7.925	0.000	1996	0.005	5
DE	0.334	0.121	0.975	0.001	50.80	4	7.925	0.500	1998	0.001	5
NO	0.320	0.866	0.018	0.721	24.84	4	7.925	0.875	1998	0.273	5
SW	0.033	0.722	0.975	0.022	40.52	4	10.101	0.048	1998	0.000	5
GR	0.711	0.007	0.105	0.047	10.64	4	7.925	0.125	1998	0.097	5
IR	0.016	0.212	0.000	0.079	20.38	4	5.492	0.000	1998		
PO	0.007	0.875	0.169	0.965	6.50	4	7.925	0.889	1995		
SP	0.008	0.540	0.000	0.129	15.87	4	7.925	0.125	1998		
NZ	0.239	0.000	0.000	0.000	22.46	4	7.925	1.000	1998	0.000	5
SA	0.097		0.000	0.444	16.86	3	4.779	0.750	1998		
VE	0.150	0.653	0.000	0.495	1.92	3	3.563	0.542	1998		
CO	0.762	0.261	0.000	0.008	6.68	4	4.779	1.000	1998		
JO	0.026	0.117	0.000	0.126							
SY	0.324	0.243	0.002	0.158	9.35	4	6.911	1.000	1998		
ID	0.500		0.345	0.214	5.41	3	7.925				
MA	0.458		0.094	0.636	9.30	3	4.115	0.643	1998		
PA	0.083		0.000	0.000	3.94	3	3.501	0.000	1998		
PH	0.408	0.001	0.437	0.007	20.82	3	7.925	0.923	1999		
TH	0.802		0.000	0.168	2.97	3	7.925	0.000	1998		
CH	0.014		0.071	0.475							
CE	0.700		0.000	0.003	1.23	3	2.180				
ME	0.421		0.000	0.000	13.18	4	7.925	1.000	1998		

Table B2: Coefficient Estimates for Equation 2

$$\log(C/POP) = a_1 + a_2 \log(C/POP)_{-1} + a_3 RS + a_4 RB + a_5 \log(Y/POP)$$

	a_1	a_2	a_3	a_4	a_5	ρ	SE	DW
Quarterly								
CA	0.023	0.913		-0.0010†	0.080		0.0076	2.03
	(1.29)	(47.56)		(-4.77)	(4.26)		1961.2–2011.3	
JA	0.120	0.883		-0.0006	0.090	-0.248	0.0097	2.06
	(6.45)	(25.51)		(-2.66)	(2.78)	(-3.40)	1966.1–2011.3	
AU	0.126	0.946	-0.0005		0.037		0.0128	2.70
	(2.70)	(26.20)	(-1.01)		(1.03)		1970.1–2011.2	
FR	-0.006	0.815	-0.0002		0.174		0.0071	1.90
	(-0.17)	(25.28)	(-1.29)		(5.27)		1968.1–2011.2	
GE	-0.088	0.812			0.187		0.0136	1.10
	(-1.71)	(27.67)			(5.92)		1963.1–2011.2	
IT	0.030	0.939	-0.0001		0.054		0.0070	1.55
	(0.70)	(29.45)	(-1.36)		(1.55)		1961.1–2011.2	
NE	0.184	0.969		-0.0012	0.008		0.0100	2.30
	(4.50)	(40.46)		(-1.88)	(0.37)		1967.1–2011.3	
ST	0.034	0.860		-0.0017	0.104		0.0045	2.06
	(2.67)	(23.70)		(-4.50)	(3.36)		1977.1–2011.2	
UK	-0.284	0.784		-0.0016	0.239		0.0100	1.64
	(-3.02)	(21.33)		(-3.67)	(5.37)		1970.1–2011.2	
FI	0.052	0.867	-0.0004		0.118		0.0111	2.01
	(1.78)	(22.02)	(-1.75)		(3.11)		1965.1–2011.3	
AS	-0.082	0.899		-0.0001	0.104		0.0072	1.98
	(-2.12)	(35.74)		(-0.56)	(3.87)		1968.1–2011.3	
SO	0.070	0.951	-0.0005†		0.039		0.0196	2.19
	(0.57)	(34.53)	(-1.73)		(1.43)		1961.1–2011.2	
KO	0.202	0.853		-0.0009	0.114		0.0188	1.90
	(3.85)	(19.15)		(-1.57)	(2.85)		1974.1–2011.2	
Annual								
BE	0.181	0.784			0.186		0.0127	1.73
	(2.58)	(9.78)			(2.34)		1962–2010	
DE	0.243	0.598			0.307		0.0221	1.76
	(3.64)	(5.67)			(3.53)		1962–2010	
NO	0.059	0.916			0.067		0.0208	1.61
	(1.48)	(15.11)			(1.30)		1962–2010	
SW	0.255	0.637			0.274		0.0169	1.12
	(3.22)	(7.41)			(4.17)		1965–2010	
GR	-0.024	0.853	-0.0010		0.146		0.0223	1.18
	(-0.17)	(21.30)	(-1.67)		(2.88)		1962–2010	
IR	1.347	0.625		-0.0071	0.225		0.0276	1.23
	(5.91)	(7.15)		(-3.68)	(3.27)		1968–2010	
PO	0.195	0.629		-0.0020	0.337		0.0343	1.54
	(1.80)	(8.18)		(-2.13)	(4.43)		1962–2010	
SP	0.196	0.522	-0.0006		0.434		0.0130	1.32
	(2.30)	(5.80)	(-1.09)		(4.72)		1962–2010	

Table B2: Coefficient Estimates for Equation 2

	a_1	a_2	a_3	a_4	a_5	ρ	SE	DW
NZ	0.032	0.563		-0.0025	0.415		0.0175	1.44
	(0.22)	(5.29)		(-2.96)	(4.08)		1962–2010	
SA	-0.034	0.847			0.123		0.1449	2.22
	(-0.06)	(9.91)			(1.08)		1970–2010	
VE	-0.562	0.703			0.459		0.0775	1.87
	(-1.97)	(9.26)			(3.77)		1962–2010	
CO	0.651	0.463			0.422		0.0231	1.73
	(3.65)	(4.48)			(4.95)		1970–2010	
SY	1.580				0.821		0.0660	1.12
	(4.05)				(23.06)		1965–2009	
ID	0.203	0.134	-0.0028		0.692		0.0247	1.83
	(4.61)	(1.22)	(-3.02)		(8.26)		1962–2010	
MA	0.454	0.467			0.446		0.0432	1.30
	(2.40)	(3.55)			(4.03)		1972–2010	
PA	0.042	0.714			0.256		0.0330	1.49
	(0.53)	(6.06)			(2.35)		1974–2010	
PH	-0.029	0.852	-0.0027		0.161		0.0226	1.59
	(-0.61)	(13.82)	(-3.62)		(2.68)		1962–2010	
TH	0.077	0.442			0.472		0.0244	1.67
	(3.67)	(6.21)			(7.72)		1962–2010	
CH	-0.101	0.623	-0.0019		0.303		0.0276	1.36
	(-1.72)	(6.32)	(-0.56)		(3.76)		1984–2010	
AR	0.792	0.406			0.483		0.0533	1.39
	(0.62)	(2.54)			(4.28)		1994–2010	
BR	0.713	0.456			0.441		0.0174	0.81
	(1.08)	(3.28)			(4.46)		1995–2010	
CE	0.414	0.481			0.438		0.0393	1.48
	(2.20)	(5.56)			(6.09)		1979–2010	
ME	0.365	0.484			0.464		0.0301	0.80
	(1.83)	(5.10)			(5.10)		1962–2010	
PE	1.327	0.427			0.405		0.0203	1.37
	(2.62)	(3.33)			(5.22)		1992–2010	

Table B2: Test Results for Equation 2

	Lags	RHO	T	Leads	Stability			End Test		overid	
	p-val	p-val	p-val	p-val	AP	df	λ	p-val	End	p-val	df
Quarterly											
CA	0.363	0.131	0.024	0.004	10.98	4	5.382	1.000	1998.4		
JA	0.262	0.087	0.579	0.003	6.50	5	6.621	0.974	1998.3	0.006	4
AU	0.000	0.000	0.916	0.776	41.69	4	5.132	1.000	1998.3	0.008	4
FR	0.235	0.000	0.930	0.303	14.61	4	4.129	1.000	1998.3		
GE	0.000	0.000	0.000	0.000	40.04	3	3.526	1.000	1998.4		
IT	0.197	0.000	0.001	0.048	25.89	4	3.369	1.000	1998.3	0.058	4
NE	0.080	0.054	0.101	0.635	2.11	4	1.913	1.000	1998.4	0.000	3
ST	0.806	0.692	0.429	0.325	5.67	4	1.547	1.000	1998.3	0.707	4
UK	0.459	0.000	0.068	0.020	16.38	4	5.132	0.619	1998.3		
FI	0.975	0.411	0.173	0.264	11.53	4	2.309	0.890	1998.3	0.082	3
AS	0.939	0.679	0.750	0.692	1.88	4	5.831	1.000	1998.2	0.513	3
SO	0.105	0.163	0.000	0.005	9.69	4	8.900	1.000	1998.3	0.000	4
KO	0.575	0.392	0.087	0.066	9.55	4	3.785	0.878	1998.4	0.008	3
Annual											
BE	0.345	0.334	0.033	0.434	7.74	3	7.925	0.950	1996	0.135	4
DE	0.570	0.006	0.222	0.751	2.84	3	7.925	0.583	1998	0.081	5
NO	0.191	0.160	0.132	0.254	18.59	3	7.925	1.000	1998	0.025	4
SW	0.003	0.000	0.003	0.443	8.96	3	6.653	1.000	1998	0.001	4
GR	0.079	0.000	0.000	0.049	18.47	4	7.925	1.000	1998		
IR	0.000	0.010	0.021	0.362	15.76	4	5.492	0.889	1998	0.074	3
PO	0.073	0.037	0.001	0.084	16.06	4	7.925	0.944	1995	0.006	3
SP	0.025	0.002	0.000	0.285	29.11	4	7.925	0.917	1998	0.042	3
NZ	0.045	0.023	0.732	0.197	8.56	4	7.925	1.000	1998	0.165	3
SA	0.554	0.376	0.956	0.164	0.46	3	4.779	0.500	1998		
VE	0.728	0.771	0.951	0.311	2.74	3	7.925	0.875	1998		
CO	0.981	0.010	0.677	0.598	2.03	3	1.132	0.000	1998		
SY	0.801	0.002	0.637	0.197	4.59	2	6.911	0.545	1998		
ID	0.432	0.166	0.014	0.837	6.25	4	7.925				
MA	0.004	0.004	0.560	0.517	3.37	3	4.115	0.000	1998		
PA	0.285	0.005	0.195	0.856	24.73	3	3.501	0.417	1998		
PH	0.321	0.002	0.010	0.264	12.84	4	7.925	0.192	1999		
TH	0.527	0.001	0.024	0.687	5.13	3	7.925	0.000	1998		
CH	0.215	0.015	0.292	0.060							
CE	0.362	0.004	0.000	0.003	1.47	3	2.180				
ME	0.012	0.000	0.408	0.634	43.74	3	7.925	0.250	1998		

Table B3: Coefficient Estimates for Equation 3

$$\log I = a_1 + a_2 \log I_{-1} + a_3 \log Y + a_4 RS + a_5 RB$$

	a_1	a_2	a_3	a_4	a_5	SE	DW
Quarterly							
CA	-0.313	0.921	0.095		-0.0015†	0.0222	1.28
	(-2.26)	(35.77)	(2.88)		(-2.70)	1961.2–2011.3	
AU	0.494	0.939	0.010		-0.0055	0.0255	2.39
	(3.29)	(29.95)	(0.32)		(-2.96)	1970.1–2011.2	
FR	0.348	0.935	0.031		-0.0028†	0.0164	1.93
	(4.65)	(46.91)	(1.85)		(-5.11)	1968.1–2011.2	
GE	0.432	0.805	0.138		-0.0020	0.0342	2.07
	(3.17)	(19.89)	(4.29)		(-1.17)	1963.1–2011.2	
IT	0.344	0.893	0.067		-0.0015†	0.0194	1.37
	(4.93)	(35.12)	(3.67)		(-3.92)	1961.1–2011.2	
NE	0.228	0.790	0.164		-0.0061†	0.0523	2.59
	(2.08)	(17.99)	(4.33)		(-2.99)	1961.1–2011.3	
ST	0.011	0.952	0.033		-0.0040	0.0228	2.17
	(0.05)	(18.04)	(0.43)		(-1.57)	1977.1–2011.2	
UK	-0.055	0.861	0.125		-0.0038†	0.0257	1.85
	(-0.28)	(24.89)	(3.22)		(-3.16)	1970.1–2011.2	
FI	0.286	0.934	0.030	-0.0015		0.0430	2.30
	(2.54)	(30.39)	(1.23)	(-1.61)		1965.1–2011.3	
AS	-0.263	0.950	0.067		-0.0013	0.0273	1.74
	(-1.72)	(36.44)	(1.94)		(-1.78)	1968.1–2011.3	
SO	-0.003	0.960	0.038		-0.0034†	0.0386	2.10
	(-0.03)	(68.47)	(2.69)		(-4.20)	1961.1–2011.2	
KO	0.063	0.951	0.040			0.0492	1.82
	(0.70)	(37.62)	(1.38)			1974.1–2011.3	
Annual							
BE	0.432	0.602	0.322		-0.0154	0.0470	1.80
	(1.71)	(6.47)	(3.68)		(-4.54)	1962–2010	
DE	-0.981	0.558	0.483		-0.0095	0.0600	1.65
	(-2.64)	(5.88)	(4.06)		(-3.45)	1962–2010	
NO	0.188	0.894	0.067	-0.0059		0.0671	1.36
	(1.39)	(13.07)	(1.21)	(-2.10)		1962–2010	
SW	-0.012	0.685	0.252	-0.0062		0.0574	1.32
	(-0.05)	(6.90)	(2.80)	(-2.22)		1965–2010	
GR	0.670	0.625	0.276	-0.0090		0.0946	1.59
	(1.73)	(5.14)	(2.33)	(-2.82)		1962–2010	
IR	1.128	0.885	0.008		-0.0099	0.1104	0.93
	(1.57)	(6.22)	(0.05)		(-1.18)	1968–2010	
PO	0.005	0.662	0.299		-0.0046	0.0687	1.02
	(0.02)	(5.48)	(2.40)		(-2.00)	1962–2010	
SP	0.207	0.767	0.198	-0.0074		0.0608	0.86
	(0.46)	(7.93)	(1.70)	(-3.17)		1962–2010	

Table B3: Coefficient Estimates for Equation 3

$$\log I = a_1 + a_2 \log I_{-1} + a_3 \log Y + a_4 RS + a_5 RB$$

	a_1	a_2	a_3	a_4	a_5	SE	DW
NZ	-1.656	0.612	0.486		-0.0065	0.0739	1.13
	(-2.27)	(4.85)	(2.90)		(-1.98)		1962–2010
ID	-1.772	0.638	0.492			0.0486	1.37
	(-3.69)	(6.14)	(3.62)				1962–2010
PA	-0.387	0.647	0.328			0.0763	1.11
	(-1.14)	(6.00)	(2.73)				1974–2010
CH	-1.323	0.446	0.647	-0.0093		0.0703	0.94
	(-1.97)	(2.15)	(2.61)	(-1.12)			1984–2010

Table B3: Test Results for Equation 3

	Lags	RHO	T	Leads	Stability			End Test		overid	
	p-val	p-val	p-val	p-val	AP	df	λ	p-val	End	p-val	df
Quarterly											
CA	0.000	0.000	0.101	0.068	7.33	4	5.382	0.885	1998.4	0.009	4
AU	0.008	0.031	0.453	0.143	14.22	4	5.132	1.000	1998.3	0.202	4
FR	0.587	0.008	0.540	0.354	6.60	4	4.129	0.873	1998.3	0.076	4
GE	0.028	0.143	0.010	0.581	7.21	4	3.526	1.000	1998.4		
IT	0.000	0.000	0.005	0.011	5.50	4	3.369	0.444	1998.3	0.001	4
NE	0.000	0.000	0.013	0.018	0.94	4	1.913	1.000	1998.4	0.000	4
UK	0.428	0.260	0.001	0.092	3.80	4	5.132	0.984	1998.3	0.001	4
FI	0.029	0.018	0.000	0.029	11.98	4	2.309	1.000	1998.3	0.000	4
AS	0.102	0.052	0.148	0.138	5.98	4	5.831	0.559	1998.2	0.187	4
SO	0.537	0.090	0.000	0.389	9.48	4	8.900	1.000	1998.3	0.001	4
KO	0.145	0.310	0.000	0.074	7.22	3	3.760	1.000	1998.4	0.056	5
Annual											
BE	0.328	0.387	0.013	0.294	5.11	4	7.925	0.950	1996	0.245	4
DE	0.115	0.141	0.000	0.557	12.36	4	7.925	1.000	1998	0.009	4
NO	0.016	0.017	0.036	0.864	4.62	4	7.925	0.458	1998	0.098	5
SW	0.000	0.000	0.148	0.771	15.63	4	6.653	0.429	1998	0.013	4
GR	0.612	0.628	0.481	0.498	14.56	4	7.925	0.375	1998	0.917	4
IR	0.000	0.000	0.000	0.035	3.53	4	5.492	0.056	1998	0.000	4
PO	0.000	0.000	0.003	0.083	5.82	4	7.925	0.333	1995	0.207	4
SP	0.000	0.000	0.507	0.001	3.50	4	7.925	0.083	1998	0.003	4
NZ	0.000	0.000	0.728	0.092	6.69	4	7.925	1.000	1998	0.227	4
ID	0.035	0.002	0.372	0.608	3.86	3	7.925				
PA	0.000	0.003	0.380	0.584	0.59	3	3.501	0.000	1998		
CH	0.000	0.002	0.079	0.001							

Table B4: Coefficient Estimates for Equation 4

$\log Y = a_1 + a_2 \log Y_{-1} + a_3 \log X + a_4 \log V_{-1}$

						Implied Values See eq. 2.10				
	a_1	a_2	a_3	a_4	ρ	λ	α	β	SE	DW
Quarterly										
CA	0.237	0.449	0.566	-0.0342	0.555	0.551	0.062	0.430	0.0058	2.15
	(4.30)	(10.63)	(13.19)	(-2.84)	(8.57)				1961.2–2011.3	
JA	0.509	0.221	0.788	-0.0535	0.468	0.779	0.069	0.174	0.0057	2.22
	(9.56)	(6.40)	(22.42)	(-5.24)	(6.97)				1966.1–2011.3	
FR	0.445	0.152	0.900	-0.0853	0.785	0.848	0.101	0.605	0.0042	1.99
	(3.67)	(7.64)	(41.74)	(-2.74)	(13.02)				1968.1–2011.2	
NE	0.011	0.078	0.924	-0.0030		0.922	0.003	0.660	0.0045	1.21
	(0.42)	(3.66)	(43.16)	(-0.85)					1961.1–2011.3	
UK	0.499	0.318	0.721	-0.0805	0.480	0.682	0.118	0.493	0.0065	2.06
	(3.28)	(6.46)	(14.48)	(-3.27)	(6.15)				1970.1–2011.2	
AS	0.410	0.476	0.555	-0.0662	0.117	0.524	0.126	0.465	0.0076	2.00
	(4.74)	(9.10)	(10.47)	(-4.25)	(1.33)				1968.1–2011.3	
Annual										
PA	-0.143	0.087	0.954	-0.0255		0.913	0.028	1.586	0.0041	1.31
	(-2.31)	(2.10)	(25.15)	(-2.27)					1974–2010	

Table B4: Test Results for Equation 4

	Lags	RHO	T	Leads	Stability			End Test	
	p-val	p-val	p-val	p-val	AP	df	λ	p-val	End
Quarterly									
CA	0.104	0.035	0.496	0.000	18.96	5	6.621	1.000	1998.4
JA	0.028	0.017	0.017	0.012	7.72	5	6.621	1.000	1998.3
FR	0.000	0.964	0.424	0.985	21.59	5	4.129	0.761	1998.3
NE	0.000	0.000	0.154	0.065	91.11	4	1.913	0.210	1998.4
UK	0.410	0.245	0.122	0.000	12.82	5	5.132	1.000	1998.3
AS	0.160	0.209	0.416	0.036	1.55	5	2.482	1.000	1998.2
Annual									
PA	0.038	0.043	0.179	0.093	8.71	4	3.501	0.667	1998

Table B5: Coefficient Estimates for Equation 5

$$\log PY = a_1 + a_2 \log PY_{-1} + a_3 \log PM + a_4 ZZ + a_5 T$$

	a_1	a_2	a_3	a_4	a_5	ρ	SE	DW
Quarterly								
CA	0.027	0.995	0.011	0.10382†	-0.00009	0.573†	0.0071	2.08
	(1.17)	(50.00)	(0.69)	(2.58)	(-0.81)	(9.54)	1961.2–2011.3	
JA	0.019	0.986	0.005		-0.00010	0.478†	0.0073	2.06
	(3.37)	(165.68)	(1.23)		(-3.17)	(7.60)	1966.1–2011.3	
AU	-0.009	0.974	0.014	0.04608†	0.00006	-0.211†	0.0067	1.99
	(-1.17)	(141.42)	(2.08)	(1.87)	(1.67)	(-2.74)	1970.1–2011.1	
FR	-0.135	0.874	0.081	0.11185†	0.00065	0.343†	0.0070	2.05
	(-4.28)	(38.97)	(5.82)	(2.68)	(4.39)	(4.30)	1968.1–2010.4	
GE	0.020	0.998	0.007	0.07252†	-0.00008		0.0068	2.11
	(2.89)	(151.70)	(1.43)	(3.56)	(-2.14)		1963.1–2011.2	
IT	0.023	0.951	0.052	0.18316†	-0.00006		0.0093	1.32
	(2.55)	(215.25)	(14.51)	(6.29)	(-1.35)		1961.1–2011.2	
NE	0.012	0.990	0.004	0.14225†	-0.00002		0.0068	1.53
	(0.82)	(86.24)	(0.60)	(5.98)	(-0.36)		1967.1–2011.2	
ST	-0.019	0.961	0.029	0.09368†	0.00011	0.397†	0.0034	2.08
	(-2.05)	(101.97)	(2.75)	(4.05)	(2.36)	(5.00)	1977.1–2011.2	
UK	-0.066	0.909	0.070†	0.11877†	0.00033	0.356†	0.0095	2.17
	(-2.94)	(56.69)	(5.56)	(3.28)	(3.13)	(4.60)	1970.1–2011.2	
FI	0.019	0.965	0.036	0.04220	-0.00006		0.0127	2.13
	(1.55)	(108.35)	(4.88)	(2.07)	(-1.05)		1965.1–2011.3	
AS	0.025	0.996		0.18800†	-0.00007	0.474†	0.0094	2.19
	(1.33)	(154.15)		(3.08)	(-0.80)	(6.75)	1968.1–2011.3	
SO	-0.032	0.949	0.044		0.00024		0.0172	1.81
	(-0.86)	(101.55)	(5.22)		(1.39)		1961.1–2010.4	
KO	-0.019	0.970		0.10464†	0.00013		0.0147	1.75
	(-1.07)	(188.60)		(3.44)	(1.47)		1974.1–2011.3	
Annual								
BE	0.086	0.972	0.053	0.26503†	-0.00143		0.0202	0.38
	(2.09)	(27.56)	(1.85)	(1.45)	(-1.60)		1962–2010	
DE	0.043	0.921	0.075		-0.00054		0.0222	0.34
	(0.95)	(20.01)	(1.92)		(-0.51)		1962–2010	
NO	-0.278	0.739	0.151	0.20479†	0.00906		0.0361	1.45
	(-1.54)	(5.21)	(1.65)	(0.93)	(1.82)		1962–2010	
SW	0.219	0.903	0.153	0.21667†	-0.00443		0.0188	0.88
	(4.60)	(28.70)	(6.41)	(2.09)	(-4.00)		1965–2010	
IR	-0.068	0.809	0.163†	0.38832†	0.00130		0.0271	1.25
	(-0.56)	(10.71)	(3.03)	(4.70)	(0.51)		1968–2010	
PO	-0.436	0.705	0.277	0.22513†	0.01023		0.0193	1.71
	(-9.05)	(44.34)	(22.92)	(3.33)	(9.19)		1962–2010	
SP	0.258	0.966	0.107†	0.45815†	-0.00447		0.0352	0.29
	(2.20)	(20.55)	(2.90)	(2.06)	(-1.65)		1962–2010	
NZ	-0.018	0.733	0.273	0.16687†	0.00133		0.0338	1.42
	(-0.19)	(15.73)	(8.19)	(1.12)	(0.60)		1962–2010	
CO	1.437	0.687	0.453	3.59103†	-0.02591		0.1736	1.61
	(2.93)	(7.00)	(3.27)	(3.19)	(-2.43)		1970–2010	
JO	0.186	0.917	0.122		-0.00305		0.0336	1.70
	(1.21)	(13.99)	(2.99)		(-0.88)		1978–2007	
SY	-0.136	0.895	0.113		0.00429		0.0655	1.34
	(-0.61)	(18.71)	(4.28)		(0.86)		1965–2009	

Table B5: Coefficient Estimates for Equation 5

	a_1	a_2	a_3	a_4	a_5	ρ	SE	DW
MA	-0.963	0.299	0.280	0.08677	0.01914		0.0341	1.88
	(-5.73)	(2.65)	(4.81)	(1.01)	(5.72)			1972–2010
PA	0.427	0.745	0.304		-0.00784		0.0332	1.83
	(1.08)	(9.99)	(5.40)		(-0.91)			1974–2010
PH	0.462	0.867	0.158†	0.29876†	-0.00402		0.0681	1.60
	(2.32)	(9.03)	(2.45)	(1.27)	(-0.67)			1962–2010
TH	0.082	0.762	0.176	0.31420†	-0.00026		0.0356	1.01
	(0.82)	(9.95)	(3.86)	(2.94)	(-0.12)			1962–2010
CH	-0.535	0.553	0.190†	0.38513	0.01278		0.0389	1.18
	(-2.48)	(4.38)	(3.44)	(1.51)	(2.67)			1984–2010
CE	-0.201	0.630	0.326	0.44541†	0.00462		0.0492	1.48
	(-1.35)	(7.73)	(3.96)	(2.10)	(1.40)			1979–2010

Table B5: Test Results for Equation 5

	Lags-1	Lags-2	RHO	Stability			End Test		overid	
	p-val	p-val	p-val	AP	df	λ	p-val	End	p-val	df
Quarterly										
CA	0.108	0.004	0.396	24.24	6	5.382	0.000	1998.4		
JA	0.000	0.000	0.000	68.48	5	6.621	0.756	1998.3		
AU	0.345	0.720	0.357	8.04	6	5.173	1.000	1998.3	0.000	6
FR	0.000	0.000	0.435	12.97	6	4.195	1.000	1998.3	0.000	7
GE	0.887	0.010	0.001	15.30	5	3.526	1.000	1998.4	0.000	6
IT	0.000	0.000	0.000	40.13	5	3.369	0.788	1998.3	0.000	6
NE	0.000	0.000	0.005	12.06	5	2.045	1.000	1998.4	0.000	4
ST	0.300	0.322	0.438	2.60	6	1.547	1.000	1998.3	0.201	6
UK	0.008	0.008	0.003	9.85	6	5.132	1.000	1998.3	0.003	7
FI	0.250	0.003	0.068	7.40	5	2.309	1.000	1998.3	0.000	4
AS	0.026	0.010	0.007	15.01	5	5.831	0.647	1998.2		
SO	0.009	0.012	0.003	24.96	4	9.081	0.713	1998.3	0.000	5
KO	0.551	0.537	0.732	3.20	4	3.785	1.000	1998.4	0.001	7
Annual										
BE	0.000	0.000	0.000	98.21	5	7.925	1.000	1996		
DE	0.000	0.000	0.000	98.78	4	7.925	1.000	1998		
NO	0.000	0.000	0.000	8.39	5	7.925	0.125	1998	0.000	4
SW	0.001	0.005	0.000	26.16	5	6.653	1.000	1998	0.001	4
IR	0.005	0.022	0.016	23.42	5	5.492	1.000	1998	0.037	4
PO	0.804	0.294	0.383	15.41	5	7.925	1.000	1995	0.228	4
SP	0.000	0.000	0.000	98.62	5	7.925	1.000	1998	0.000	4
NZ	0.038	0.164	0.049	9.95	5	7.925	1.000	1998	0.022	4
CO	0.675	0.302	0.281	11.33	5	4.779	0.000	1998		
JO	0.904	0.636	0.467							
SY	0.004	0.011	0.003	20.81	4	6.911	1.000	1998		
MA	0.001	0.000	0.000	17.47	5	4.115	0.643	1998		
PA	0.365	0.123	0.724	5.84	4	3.501	0.167	1998		
PH	0.540	0.251	0.159	24.91	5	7.925	1.000	1999		
TH	0.000	0.028	0.000	60.56	5	7.925	0.667	1998		
CH	0.013	0.000	0.020					44	0.011	4
CE	0.369	0.072	0.400	18.65	5	2.180				

Table B6: Coefficient Estimates for Equation 6

$$\log[M1/(POP \cdot PY)] = a_1 + a_2 \log[M1/(POP \cdot PY)]_{-1} + a_3 \log[M1_{-1}/(POP_{-1} \cdot PY)] + a_4 RS + a_5 \log(Y/POP)$$

	a_1	a_2	a_3	a_4	a_5	SE	DW
Quarterly							
CA	-0.278		0.930	-0.0031	0.103	0.0272	2.29
	(-2.59)		(53.74)	(-2.69)	(4.13)	1968.1–2008.4	
GE	-0.218	0.987		-0.0029	0.040	0.0373	2.02
	(-1.02)	(75.90)		(-2.00)	(1.14)	1966.1–2011.2	
NE	-0.075		0.921	-0.0046	0.094	0.0203	2.15
	(-1.37)		(60.27)	(-5.96)	(4.56)	1961.1–2011.3	
ST	0.004	0.960		-0.0077	0.056	0.0363	1.84
	(0.04)	(50.14)		(-3.70)	(1.29)	1977.1–2011.2	
UK	0.140	0.977		-0.0030	0.004	0.0146	2.21
	(1.52)	(119.11)		(-5.90)	(0.60)	1970.1–2006.1	
FI	-1.176		0.725	-0.0062	0.441	0.0691	1.83
	(-3.38)		(14.03)	(-2.98)	(4.89)	1970.1–2010.4	
AS	-0.595		0.940	-0.0033	0.127	0.0244	2.04
	(-3.48)		(60.31)	(-3.46)	(3.81)	1968.1–2011.3	
KO	0.104		0.912		0.065	0.0614	2.43
	(1.52)		(20.80)		(1.55)	1974.1–2010.2	
Annual							
BE	0.340	0.950		-0.0095	0.018	0.0338	1.91
	(1.32)	(20.70)		(-5.43)	(0.70)	1962–2010	
DE	-0.573		0.779	-0.0078	0.297	0.0498	1.96
	(-1.96)		(12.71)	(-2.79)	(3.01)	1962–2008	
SW	0.014	0.969		-0.0071	0.038	0.0405	1.87
	(0.08)	(13.63)		(-3.93)	(0.68)	1965–2008	
IR	0.296		0.771	-0.0250	0.194	0.1715	2.27
	(0.12)		(7.68)	(-1.17)	(0.72)	1983–2010	
PO	-0.745	0.840		-0.0013	0.226	0.1274	1.49
	(-1.09)	(10.57)		(-0.46)	(1.67)	1962–2010	
SP	0.281		0.820	-0.0052	0.144	0.0849	1.57
	(0.73)		(10.47)	(-1.55)	(1.52)	1962–2010	
VE	-2.185	0.706		-0.0038	0.994	0.1801	1.69
	(-2.53)	(7.68)		(-2.36)	(2.70)	1962–2010	
ID	-0.836		0.620	-0.0019	0.464	0.0453	1.89
	(-3.03)		(4.93)	(-0.85)	(3.22)	1962–2010	
PA	-0.157		0.848	-0.0096	0.194	0.0685	1.69
	(-0.49)		(6.99)	(-1.75)	(1.26)	1974–2007	
PH	-0.449		0.717	-0.0093	0.277	0.0765	2.18
	(-2.16)		(8.68)	(-2.54)	(3.06)	1962–2007	

Table B6: Test Results for Equation 6

	[a]N vs R	Lags	RHO	T	Stability			End Test		overid	
	p-val	p-val	p-val	p-val	AP	df	λ	p-val	End	p-val	df
Quarterly											
CA	0.044	0.317	0.008	0.581	15.20	4	6.476	1.000	1998.4	0.162	5
GE	0.641	0.000	0.100	0.001	48.33	4	3.840	1.000	1998.4	0.000	4
NE	0.460	0.027	0.278	0.528	6.60	4	1.913	0.000	1998.4		
ST	0.074	0.000	0.074	0.386	15.88	4	1.000	0.000	1998.3	0.365	5
UK	0.000	0.051	0.071	0.018	4.28	4	6.435	0.357	1998.3	0.200	4
FI	0.004	0.064	0.000	0.000	32.07	4	2.573	1.000	1998.3	0.004	4
AS	0.454	0.755	0.233	0.486	2.20	4	5.831	0.574	1998.2	0.063	4
KO	0.683	0.006	0.006	0.103	2.75	3	3.896	0.981	1998.4	0.017	5
Annual											
BE	0.903	0.952	0.857	0.758	3.71	4	7.925	0.050	1996		
DE	0.945	0.413	0.865	0.018	2.39	4	4.902	0.577	1998		
SW	0.152	0.927	0.668	0.699	2.96	4	7.208	0.000	1998		
IR	0.602	0.606	0.458	0.434	1.60	4	1.000	0.000	1998		
PO	0.003	0.029	0.060	0.118	39.63	4	7.925	1.000	1995		
SP	0.298	0.477	0.108	0.457	2.15	4	7.925	0.000	1998		
VE	0.494	0.420	0.000	0.000	14.50	4	7.925	0.083	1998		
ID	0.972	0.773	0.642	0.441	12.49	4	7.925				
PA	0.508	0.097	0.630	0.741	5.50	4	3.850	0.000	1998		
PH	0.388	0.192	0.460	0.379	3.49	4	9.061	0.414	1999		

Table B7: Coefficient Estimates for Equation 7

$RS = a_1 + a_2 RS_{-1} + a_3 PCPY + a_4 ZZ + a_5 RS_{GE} + a_6 RS_{US}$

	a_1	a_2	a_3	a_4	a_5	a_6	ρ	SE	DW
Quarterly									
EU	0.25	0.840	0.042†	8.3		0.12		0.684	1.50
	(1.82)	(27.60)	(2.06)	(3.83)		(4.78)		1972.2–2011.2	
CA	0.22	0.810	-0.012	6.9		0.24		0.798	1.62
	(1.30)	(21.89)	(-0.44)	(2.70)		(4.63)		1972.2–2011.3	
JA	-0.17	0.807	0.129			0.13	0.360	0.614	2.07
	(-1.09)	(21.44)	(5.11)			(3.37)	(4.16)	1972.2–2011.3	
AU	1.72	0.744		42.9		0.04		0.698	1.96
	(5.39)	(18.09)		(7.31)		(1.50)		1972.2–1998.4	
FR	-0.23	0.742	0.033	2.5	0.20	0.17		0.885	1.62
	(-0.59)	(15.70)	(1.00)	(0.32)	(3.42)	(3.53)		1972.2–1998.4	
GE	0.26	0.831	0.040†	11.9		0.14		0.796	1.53
	(0.98)	(21.30)	(1.19)	(3.75)		(3.97)		1972.2–1998.4	
IT	1.02	0.869	0.078	20.6			0.322	1.060	1.92
	(1.85)	(16.33)	(2.50)	(2.12)			(2.90)	1972.2–1998.4	
NE	0.03	0.516		8.3	0.36	0.16		1.439	1.68
	(0.06)	(7.20)		(1.19)	(4.02)	(2.40)		1972.2–1998.4	
ST	0.39	0.811	0.139	6.4			0.448	0.579	1.89
	(1.85)	(10.58)	(1.68)	(1.65)			(4.62)	1977.1–2011.2	
UK	0.46	0.807	0.016	7.4		0.22		0.885	1.53
	(2.51)	(22.06)	(0.94)	(3.63)		(5.39)		1972.2–2011.2	
FI	1.02	0.939		6.9				0.940	1.77
	(2.75)	(32.91)		(3.43)				1972.2–1998.4	
AS	0.14	0.889	0.024	11.8		0.14		0.994	1.73
	(0.69)	(35.06)	(1.03)	(2.65)		(3.71)		1972.2–2011.3	
SO	0.35	0.901				0.13	0.481	0.996	2.00
	(0.68)	(20.50)				(2.47)	(5.12)	1972.2–2011.2	
Annual									
BE	0.72	0.601	0.024	34.2	0.42			1.491	2.33
	(0.66)	(3.54)	(0.24)	(1.26)	(2.22)			1972–1998	
DE	-0.49	0.630	0.225	11.9	0.49			2.050	2.36
	(-0.62)	(6.25)	(2.08)	(1.09)	(3.02)			1972–2010	
NO	0.59	0.761		14.2	0.30			1.550	1.95
	(0.83)	(9.71)		(2.10)	(2.74)			1972–2010	
SW	-0.77	0.773	0.060	8.1		0.37		1.664	2.62
	(-1.17)	(7.39)	(0.61)	(0.87)		(3.01)		1972–2010	
IR	2.60		0.150		0.26	0.74		2.077	1.81
	(2.02)		(2.09)		(1.36)	(3.88)		1972–1998	
PO	-0.74	0.760	0.328	38.6				2.583	1.89
	(-0.56)	(8.51)	(4.21)	(2.82)				1972–1998	
SP	1.83	0.555	0.195			0.21		3.009	2.40
	(0.88)	(3.07)	(1.72)			(0.72)		1972–1998	
NZ	1.01	0.732	0.217					2.462	1.94
	(1.09)	(7.85)	(3.06)					1972–2010	
ID	0.37	0.831	0.246					1.524	1.70
	(0.31)	(11.22)	(4.16)					1972–2010	
PA	2.01	0.672	0.138	16.4				1.429	2.23
	(2.09)	(6.43)	(3.04)	(2.08)				1974–2010	
PH	1.72	0.664	0.160			0.26		2.452	1.51
	(1.31)	(7.58)	(3.29)			(1.77)		1972–2010	

Table B7: Test Results for Equation 7

	Lags	RHO	T	Stability			End Test		overid	
	p-val	p-val	p-val	AP	df	λ	p-val	End	p-val	df
Quarterly										
EU	0.016	0.000	0.621					44	0.726	3
CA	0.382	0.000	0.030	16.80	5	4.318	1.000	1998.4	0.000	5
JA	0.133	0.201	0.145	6.87	5	4.318	1.000	1998.3	0.011	7
AU	0.406	0.307	0.585	0.93	4	2.696			0.445	6
FR	0.497	0.108	0.053	4.76	6	2.696			0.012	4
GE	0.062	0.000	0.156	13.61	5	2.696			0.000	5
IT	0.197	0.157	0.924	0.94	5	2.696	0.452	1998.3	0.019	7
NE	0.177	0.010	0.583	2.45	5	1.125			0.053	5
ST	0.036	0.108	0.000	9.31	5	1.377	1.000	1998.3	0.000	6
UK	0.006	0.003	0.038	7.20	5	4.349	1.000	1998.3	0.023	5
FI	0.386	0.190	0.947	1.15	3	1.393			0.373	4
AS	0.458	0.050	0.166	8.02	5	4.318	1.000	1998.2	0.001	5
SO	0.498	0.909	0.018	8.90	4	4.349	0.056	1998.3	0.014	6
Annual										
BE	0.017	0.185	0.871	5.55	5	2.469				
DE	0.072	0.135	0.328	6.48	5	4.115	1.000	1998		
NO	0.216	0.969	0.992	10.03	4	4.115	0.429	1998		
SW	0.196	0.016	0.308	4.56	5	4.115	1.000	1998		
IR	0.981	0.976	0.069	5.11	4	2.469				
PO	0.981	0.792	0.043	4.02	4	2.469				
SP	0.575	0.123	0.449	1.98	4	2.469				
NZ	0.698	0.854	0.678	4.45	3	2.864	1.000	1998		
ID	0.814	0.541	0.835	4.65	3	4.115				
PA	0.475	0.403	0.285	8.17	4	3.501	0.167	1998		
PH	0.120	0.122	0.272	10.36	4	4.115	1.000	1999		

Table B8: Coefficient Estimates for Equation 8

$RB - RS_{-2} = a_1 + a_2(RB_{-1} - RS_{-2}) + a_3(RS - RS_{-2}) + a_4(RS_{-1} - RS_{-2})$

	a_1	a_2	a_3	a_4	ρ	SE	DW
Quarterly							
EU	0.083	0.937	0.377	-0.372		0.3757	1.78
	(1.75)	(38.48)	(3.98)	(-3.18)		1970.3–2011.3	
CA	0.092	0.927	0.309	-0.259		0.3832	1.96
	(2.08)	(36.73)	(2.18)	(-1.52)		1961.2–2011.3	
JA	0.171	0.914	0.400	-0.371		0.4871	1.96
	(1.84)	(26.10)	(2.48)	(-1.56)		1966.1–2011.3	
AU	0.061	0.950	0.158	-0.062	0.392	0.2651	1.92
	(0.94)	(31.11)	(1.61)	(-0.82)	(4.18)	1970.1–1998.4	
FR	0.067	0.865	0.432	-0.283	0.272	0.4520	2.01
	(0.95)	(14.53)	(2.67)	(-1.72)	(2.14)	1968.1–1998.4	
GE	0.101	0.936	0.431	-0.432		0.3790	1.87
	(2.14)	(41.17)	(4.54)	(-3.60)		1963.1–2011.2	
IT	0.095	0.710	0.486	-0.287	0.582	0.4405	1.95
	(1.03)	(7.59)	(3.95)	(-3.14)	(5.11)	1961.1–1998.4	
NE	0.179	0.872	0.367	-0.297		0.4910	1.95
	(2.47)	(20.13)	(3.57)	(-3.19)		1961.1–1998.4	
ST	0.017	0.964	0.316	-0.268		0.2644	1.87
	(0.62)	(49.23)	(3.72)	(-2.25)		1977.1–2011.2	
UK	0.018	0.967	0.415	-0.455		0.4728	1.62
	(0.37)	(36.29)	(2.19)	(-1.98)		1970.1–2011.2	
AS	0.030	0.945	0.377	-0.405		0.4913	1.68
	(0.66)	(22.80)	(2.27)	(-2.25)		1968.1–2011.3	
SO	0.153	0.919	0.845	-1.162		0.6553	1.99
	(1.87)	(23.23)	(2.65)	(-2.64)		1961.1–2011.2	
KO	0.132	0.911	0.381	-0.150		1.0167	2.05
	(1.05)	(21.01)	(2.42)	(-0.81)		1974.1–2011.2	
Annual							
BE	0.509	0.753	0.378			0.6957	1.43
	(2.05)	(7.89)	(5.64)			1962–1998	
DE	0.358	0.731	0.415			1.1104	1.73
	(1.66)	(7.27)	(5.28)			1962–2010	
NO	-0.031	0.849	0.441			0.6484	1.82
	(-0.33)	(9.08)	(6.61)			1962–2010	
IR	0.466	0.540	0.479			1.2546	1.46
	(1.72)	(4.04)	(5.71)			1968–1998	
PO	0.064	0.785	0.385			1.2897	1.69
	(0.30)	(8.99)	(5.16)			1962–1998	
NZ	-0.146	0.789	0.364			0.9084	2.43
	(-1.00)	(9.27)	(6.09)			1962–2010	
TH	0.015	0.831	0.339			1.0308	2.23
	(0.08)	(10.97)	(5.42)			1978–2010	

Table B8: Test Results for Equation 8

	[a]Restr.	Lags	RHO	T	Leads	Stability			End Test		overid	
	p-val	p-val	p-val	p-val	p-val	AP	df	λ	p-val	End	p-val	df
Quarterly												
EU	0.135	0.002	0.001	0.947	0.200					44	0.000	6
CA	0.036	0.095	0.694	0.534	0.031	4.02	4	5.382	1.000	1998.4	0.047	5
JA	0.084	0.249	0.510	0.018	0.077	5.80	4	6.621	1.000	1998.3	0.134	5
AU	0.364	0.078	0.811	0.034	0.224	2.24	5	3.475			0.014	6
FR	0.586	0.717	0.737	0.625	0.441	3.44	5	3.117			0.868	6
GE	0.174	0.003	0.000	0.363	0.215	3.99	4	3.526	1.000	1998.4	0.001	5
IT	0.186	0.434	0.720	0.235	0.198	6.59	5	2.445			0.876	6
NE	0.489	0.370	0.021	0.124	0.466	3.30	4	1.104			0.479	5
ST	0.004	0.002	0.111	0.431	0.007	6.12	4	1.547	0.086	1998.3	0.000	5
UK	0.823	0.347	0.027	0.166	0.731	5.16	4	5.132	1.000	1998.3	0.001	5
AS	0.117	0.148	0.006	0.117	0.101	7.83	4	5.831	1.000	1998.2	0.001	5
SO	0.300	0.010	0.036	0.037	0.268	4.48	4	8.900	0.475	1998.3	0.090	5
KO	0.656	0.761	0.566	0.099	9.900	4.35	4	3.785	1.000	1998.4	0.013	5
Annual												
BE	0.372	0.158	0.030	0.002	0.499	12.00	3	24.156				
DE	0.918	0.816	0.259	0.036	0.539	7.93	3	7.925	1.000	1998		
NO	0.208	0.299	0.470	0.040	0.831	5.38	3	7.925	0.875	1998		
IR	0.570	0.561	0.019	0.000	0.689	10.11	3	3.812				
PO	0.002	0.002	0.156	0.004	0.117	7.87	3	6.370				
NZ	0.097	0.000	0.003	0.871	0.516	0.91	0	0.000				
TH	0.060	0.334	0.482	0.642	0.632	5.97	3	2.419	1.000	1998		

Table B9: Coefficient Estimates for Equation 9

$$\Delta \log E = a_1 + \lambda[\log(PY/PY_{US}) - \log E_{-1}] + .25\lambda\beta \log[(1 + RS/100)/(1 + RS_{US}/100)]$$

or

$$\Delta \log H = a_1 + \lambda[\log(PY/PY_{GE}) - \log H_{-1}] + .25\lambda\beta \log[(1 + RS/100)/(1 + RS_{GE}/100)]$$

	a_1	λ	$\lambda\beta$	ρ	SE	DW
Quarterly						
EU	-0.022	0.087	-1.730	0.305	0.0469	1.95
	(-2.55)	(2.36)	(-1.53)	(3.43)	1972.2–2011.2	
CA	0.015	0.057	-0.804	0.400	0.0244	1.89
	(1.62)	(1.77)	(-0.79)	(4.53)	1972.2–2011.3	
JA	-0.123	0.050	-1.040	0.272	0.0476	1.92
	(-20.84)		(-1.26)	(3.44)	1972.2–2011.3	
AU	0.004	0.050		0.494	0.0045	2.14
	(4.43)			(5.95)	1972.2–1998.4	
FR	0.011	0.173		0.219	0.0199	2.04
	(3.98)	(3.34)		(1.96)	1972.2–1998.4	
GE	-0.023	0.086	-1.708	0.300	0.0489	1.98
	(-2.19)	(1.99)	(-1.35)	(2.76)	1972.2–1998.4	
IT	0.024	0.050		0.335	0.0333	1.95
	(5.05)			(3.65)	1972.2–1998.4	
NE	0.007	0.050	-1.546		0.0092	2.02
	(7.86)		(-5.53)		1972.2–1998.4	
ST	-0.161	0.025			0.0218	1.53
	(-1.06)	(1.04)			1977.1–2011.2	
UK		0.050	-0.474		0.0407	1.42
	(0.06)		(-0.81)		1972.2–2011.2	
FI	0.009	0.077	-0.448	0.354	0.0295	2.00
	(1.03)	(1.37)	(-0.47)	(3.05)	1972.2–1998.4	
AS	0.021	0.063		0.327	0.0463	1.94
	(1.64)	(1.74)		(3.67)	1972.2–2011.3	
KO	0.019	0.113		0.371	0.0476	1.93
	(2.39)	(2.39)		(3.90)	1974.1–2011.3	
Annual						
BE	0.032	0.171			0.0288	1.39
	(3.18)	(2.11)			1972–1998	
DE	-0.198	0.044			0.0260	0.91
	(-0.61)	(0.66)			1972–2010	
NO	-0.153	0.033			0.0515	1.58
	(-0.53)	(0.59)			1972–2010	
SW	-1.486	0.316			0.0602	1.95
	(-3.62)	(3.69)			1972–2010	
GR	0.150	0.299			0.0667	0.96
	(5.35)	(1.84)			1972–2000	
IR	0.077	0.120			0.0623	0.98
	(2.17)	(0.95)			1972–1998	

Table B9: Coefficient Estimates for Equation 9

	a_1	λ	$\lambda\beta$	ρ	SE	DW
PO	0.190	0.353			0.0951	0.56
	(2.89)	(1.52)				1972–1998
SP	0.054	0.168			0.0722	1.27
	(3.90)	(1.16)				1972–1998
NZ	0.077	0.105	-2.953		0.1076	1.16
	(1.59)	(0.88)	(-1.43)			1972–2010
PH	-1.655	0.371			0.0899	1.11
	(-3.48)	(3.58)				1972–2010

Table B9: Test Results for Equation 9

	[a]Restr.	Lags	RHO	T	Stability			End Test		overid	
	p-val	p-val	p-val	p-val	AP	df	λ	p-val	End	p-val	df
Quarterly											
EU	0.636	0.639	0.774	0.719					44	0.525	4
CA	0.863	0.223	0.096	0.166	0.60	3	4.318	0.000	1998.4	0.047	6
JA	0.189	0.625	0.148	0.107	4.97	3	4.318	1.000	1998.3	0.054	7
AU	0.003	0.030	0.148	0.001	4.61	2	2.696			0.010	7
FR	0.181	0.521	0.493	0.516	1.95	3	2.696			0.401	6
GE	0.772	0.620	0.919	0.871	4.39	4	2.696			0.437	6
IT	0.001	0.917	0.520	0.004	4.40	2	2.696			0.109	7
NE	0.740	0.839	0.007	0.409	0.32	2	1.125			0.103	7
ST	0.479	0.002	0.009	0.092	5.14	2	1.547	0.571	1998.3	0.008	6
UK	0.000	0.001	0.001	0.000	8.05	2	4.349	1.000	1998.3	0.000	7
FI	0.381	0.772	0.671	0.407	1.87	4	1.393			0.093	6
AS	0.707	0.422	0.237	0.263	1.52	3	4.318	0.000	1998.2	0.066	6
KO	0.052	0.401	0.187	0.106	9.30	3	3.760	0.062	1998.4	0.633	6
Annual											
BE	0.940	0.134	0.127	0.969	24.79	2	2.469				
DE	0.000	0.000	0.000	0.000	26.76	2	4.115	1.000	1998		
NO	0.057	0.299	0.353	0.051	2.25	2	4.115	0.571	1998		
SW	0.289	0.728	0.989	0.166	5.54	2	4.115	1.000	1998		
GR	0.002	0.003	0.001	0.000	10.98	2	7.528	0.125	1998		
IR	0.000	0.001	0.000	0.000	5.60	2	2.469				
PO	0.026	0.000	0.000	0.005	8.75	2	2.469				
SP	0.003	0.051	0.002	0.008	4.34	2	2.469	0.500	1998		
NZ	0.312	0.001	0.005	0.070	7.26	3	4.115	0.000	1998		
PH	0.655	0.010	0.000	0.928	2.56	2	4.115	1.000	1999		

Table B10: Coefficient Estimates for Equation 10

$\log F = a_1 \log EE + a_2(.25) \log[(1 + RS/100)/(1 + RS_{US}/100)]$

	a_1	a_2	ρ	SE	DW
Quarterly					
CA	0.9824	1.761	0.793	0.0096	2.28
	(49.23)	(3.68)	(11.64)		1972.2–1997.3
JA	1.0016	1.093	0.372	0.0088	1.84
	(1356.81)	(6.68)	(4.66)		1972.2–2006.3
AU	0.9930	1.049	0.250	0.0058	2.10
	(299.71)	(8.25)	(2.60)		1972.2–1998.4
FR	1.0076	0.644		0.0071	1.54
	(333.90)	(4.78)			1972.2–1989.3
GE	0.9960	1.198	0.720	0.0032	2.21
	(250.42)	(10.89)	(10.67)		1972.2–1998.4
IT	0.9967	1.057		0.0105	1.74
	(257.91)	(8.62)			1976.3–1998.4
NE	0.9921	1.154		0.0086	1.91
	(184.37)	(6.31)			1972.2–1990.4
ST	1.0001	1.247		0.0053	1.97
	(11315.43)	(17.80)			1977.1–2011.3
UK	1.0028	1.246	0.199	0.0049	2.01
	(743.07)	(12.21)	(2.32)		1972.2–2006.3
FI	0.9897	1.177	0.555	0.0088	2.42
	(128.83)	(4.65)	(5.52)		1972.2–1989.3
AS	1.0038	1.142		0.0065	1.95
	(458.71)	(15.96)			1976.1–2006.4

Table B11: Coefficient Estimates for Equation 11
$\log PX - \log[PW\$(E/E00)] = \lambda[\log PY - \log[PW\$(E/E00)]$

	λ	ρ_1	ρ_2	SE	DW
Quarterly					
CA	0.668	1.247	-0.266	0.0154	2.03
	(16.27)	(18.05)	(-3.87)		1961.2–2010.4
JA	0.390	1.283	-0.293	0.0135	1.96
	(16.50)	(17.89)	(-4.12)		1966.1–2010.4
AU	0.867	0.849	0.136	0.0096	1.99
	(34.73)	(10.89)	(1.77)		1970.1–2010.4
FR	0.766	0.938	0.051	0.0123	1.98
	(25.07)	(11.99)	(0.65)		1968.1–2010.4
GE	0.801	1.047	-0.061	0.0082	1.98
	(40.61)	(14.41)	(-0.85)		1963.1–2010.4
IT	0.625	0.838	0.133	0.0157	1.92
	(18.15)	(11.84)	(1.90)		1961.1–2010.4
NE	0.570	1.159	-0.169	0.0167	2.02
	(12.59)	(16.50)	(-2.43)		1961.1–2010.4
ST	0.855	0.793	0.176	0.0124	2.08
	(30.06)	(9.12)	(2.06)		1977.1–2010.4
UK	0.709	1.037	-0.045	0.0199	1.99
	(16.19)	(13.16)	(-0.57)		1970.1–2010.4
FI	0.437	1.072	-0.089	0.0224	2.02
	(8.77)	(14.25)	(-1.17)		1965.1–2010.4
AS	0.498	1.349	-0.384	0.0323	1.85
	(8.12)	(18.80)	(-5.30)		1968.1–2010.4
SO	0.617	0.886	0.088	0.0403	2.01
	(11.04)	(12.45)	(1.24)		1961.1–2010.4
KO	0.870	1.154	-0.168	0.0384	1.90
	(12.27)	(13.41)	(-1.98)		1974.1–2010.4
Annual					
BE	0.508	0.983	-0.048	0.0222	1.95
	(9.71)	(6.50)	(-0.33)		1962–2010
DE	0.605	1.081	-0.135	0.0187	1.96
	(12.44)	(7.31)	(-0.97)		1962–2010
SW	0.494	1.175	-0.273	0.0314	1.77
	(6.40)	(7.89)	(-1.90)		1965–2010
IR	0.515	1.248	-0.265	0.0289	1.99
	(7.55)	(8.03)	(-1.74)		1968–2010
SP	0.532	1.141	-0.176	0.0360	1.69
	(6.72)	(7.84)	(-1.26)		1962–2010

Table B11: Coefficient Estimates for Equation 11

	λ	ρ_1	ρ_2	SE	DW
NZ	0.511	0.885	-0.031	0.0720	1.94
	(3.55)	(5.81)	(-0.21)		1962–2010
CO	0.100	0.976	-0.083	0.1362	1.97
	(0.96)	(5.98)	(-0.52)		1970–2010
ID	0.545	0.634	-0.191	0.0498	2.02
	(14.15)	(4.48)	(-1.37)		1962–2010
MA	0.811	0.793	0.022	0.1186	1.91
	(3.01)	(4.65)	(0.13)		1972–2010
PA	0.138	0.907	0.019	0.0676	2.17
	(0.80)	(6.08)	(0.12)		1974–2010
TH	0.530	0.936	-0.406	0.0604	1.83
	(6.37)	(6.96)	(-3.10)		1962–2010
CH	0.500	1.119	-0.255	0.0433	1.98
		(5.81)	(-1.32)		1984–2010
ME	0.500	1.172	-0.229	0.0557	1.91
		(8.24)	(-1.65)		1962–2010

Table B11: Test Results for Equation 11

	[a]Restr.	Stability			End Test	
	p-val	AP	df	λ	p-val	End
Quarterly						
CA	0.005	1.41	3	3.258	0.253	1998.4
JA	0.000	2.58	3	6.803	1.000	1998.3
AU	0.000	9.67	3	5.217	0.754	1998.3
FR	0.035	8.43	3	4.195	0.534	1998.3
GE	0.000	7.48	3	3.583	0.979	1998.4
IT	0.000	4.77	3	3.423	1.000	1998.3
NE	0.000	9.83	3	1.945	0.447	1998.4
ST	0.030	1.15	3	1.557	0.000	1998.3
UK	0.026	3.39	3	5.217	1.000	1998.3
FI	0.000	16.71	3	2.352	0.482	1998.3
AS	0.001	4.74	3	5.984	0.000	1998.2
SO	0.028	2.08	3	9.081	1.000	1998.3
KO	0.000	15.47	3	3.839	0.098	1998.4
Annual						
BE	0.000	3.71	3	7.925	0.250	1996
DE	0.490	0.87	3	7.925	0.458	1998
SW	0.000	17.15	3	6.653	1.000	1998
IR	0.491	-6.75	3	5.492	1.000	1998
SP	0.007	2.40	3	7.925	1.000	1998
NZ	0.000	5.76	3	7.925	0.542	1998
CO	0.080	6.19	3	4.779	1.000	1998
ID	0.935	0.35	3	7.925		
MA	0.697	4.02	3	4.115	1.000	1998
PA	0.272	5.15	3	4.603	1.000	1998
TH	0.237	3.28	3	7.925	1.000	1998

Table B13: Coefficient Estimates for Equation 13

$$\Delta \log J = a_1 + a_2 T + a_3 \log(J/JMIN)_{-1} + a_4 \Delta \log Y + a_5 \Delta \log Y_{-1}$$

	a_1	a_2	a_3	a_4	a_5	ρ	SE	DW
Quarterly								
CA	0.002		-0.073	0.278	0.218		0.0042	1.62
	(1.81)	(-0.49)	(-3.41)	(3.08)	(4.68)		1961.2–2011.3	
JA	0.007	-0.00003	-0.061	0.025			0.0045	2.07
	(3.40)	(-3.13)	(-3.09)	(0.32)			1966.1–2011.3	
FR	0.003		-0.178	0.085		-0.346	0.0110	1.93
	(1.36)	(0.01)	(-4.51)	(1.07)		(-4.51)	1968.2–2011.2	
GE	-0.006	0.00004	-0.071	0.390			0.0050	1.86
	(-4.07)	(4.51)	(-2.69)	(3.75)			1963.1–2011.2	
IT		0.00001	-0.081	0.125			0.0060	2.27
	(-0.08)	(1.35)	(-3.78)	(2.67)			1961.1–2011.2	
ST	0.002		-0.085	0.325			0.0035	1.11
	(1.69)	(-0.08)	(-3.86)	(3.86)			1977.1–2011.2	
UK	-0.001	0.00002	-0.131	0.122		0.390	0.0028	2.19
	(-0.64)	(2.15)	(-7.58)	(5.54)		(5.21)	1970.1–2011.2	
FI	-0.002	0.00001	-0.083	0.393			0.0075	1.80
	(-1.01)	(1.07)	(-4.29)	(4.48)			1965.1–2011.1	
AS	0.011	-0.00003	-0.225	0.096		0.531	0.0039	2.12
	(4.75)	(-1.97)	(-5.88)	(3.20)		(7.59)	1968.1–2011.3	
Annual								
BE	-0.022	0.00056	-0.133	0.418			0.0094	1.75
	(-4.45)	(4.83)	(-1.42)	(5.12)			1962–2010	
DE	-0.001	0.00007	-0.370	0.301			0.0115	1.59
	(-0.29)	(0.55)	(-5.27)	(3.98)			1962–2010	
NO	-0.011	0.00029	-0.067	0.447			0.0134	0.90
	(-1.43)	(1.79)	(-0.97)	(3.25)			1962–2010	
SW		0.00004	-0.130	0.393			0.0132	0.95
		(0.26)	(-2.79)	(4.14)			1965–2010	
IR	-0.048	0.00129	-0.322	0.496			0.0153	1.84
	(-6.41)	(5.73)	(-4.64)	(6.08)			1968–2010	

Table B13: Test Results for Equation 13

	Lags	RHO	Leads	Stability			End Test		overid	
	p-val	p-val	p-val	AP	df	λ	p-val	End	p-val	df
Quarterly										
CA	0.002	0.005	0.655	11.77	5	5.382	0.865	1998.4	0.000	5
JA	0.035	0.181	0.697	11.13	4	6.621	0.000	1998.3	0.001	6
FR	0.037	0.059	0.310	3.05	5	1.895	1.000	1998.3		
GE	0.001	0.007	0.661	9.62	4	3.526	0.419	1998.4	0.006	6
IT	0.016	0.040	0.344	2.98	4	3.369	1.000	1998.3		
ST	0.000	0.000	0.555	42.56	4	1.547	1.000	1998.3	0.000	6
UK	0.001	0.001	0.003	30.46	5	5.132	0.698	1998.3		
FI	0.000	0.000	0.119	28.21	4	2.337	1.000	1998.3	0.000	7
AS	0.442	0.139	0.000	5.25	5	5.831	1.000	1998.2		
Annual										
BE	0.304	0.305	0.131	5.96	4	7.925	0.450	1996		
DE	0.379	0.096	0.115	5.12	4	7.925	0.792	1998		
NO	0.000	0.000	0.145	8.39	4	7.925	0.500	1998		
SW	0.000	0.000	0.015	16.42	4	6.653	0.810	1998		
IR	0.152	0.370	0.651	4.46	4	5.492	0.000	1998		

Table B14: Coefficient Estimates for Equation 14

$\log(L1/POP1) = a_1 + a_2 T + a_3 \log(L1/POP1)_{-1} + a_4 UR$

	a_1	a_2	a_3	a_4	SE	DW
Quarterly						
JA	-0.006	0.00001	0.984	-0.108	0.0044	2.03
	(-0.67)	(0.48)	(42.05)	(-1.68)		1966.1–2011.3
ST	-0.010	0.00007	0.991	-0.230	0.0031	1.56
	(-1.72)	(4.64)	(80.18)	(-6.03)		1977.1–2011.2
FI	-0.017		0.962	-0.019	0.0051	1.87
	(-2.18)	(-0.19)	(52.08)	(-1.29)		1965.1–2010.4
AS	-0.055	0.00006	0.897	-0.034	0.0039	1.71
	(-3.25)	(3.31)	(28.53)	(-2.27)		1968.1–2011.3
Annual						
BE	-0.071	0.00021	0.895	-0.036	0.0068	2.14
	(-1.34)	(2.13)	(11.06)	(-1.00)		1962–2010
NO	-0.038	0.00048	0.929	-0.251	0.0124	1.05
	(-0.95)	(1.38)	(14.87)	(-1.47)		1962–2010
SW	-0.075	0.00045	0.838	-0.295	0.0075	1.57
	(-3.16)	(3.22)	(16.67)	(-4.24)		1965–2010
IR	-0.149	0.00113	0.761	-0.247	0.0122	2.37
	(-4.29)	(4.76)	(13.70)	(-4.08)		1968–2010

Table B14: Test Results for Equation 14

	Lags	RHO	Stability			End Test		overid	
	p-val	p-val	AP	df	λ	p-val	End	p-val	df
Quarterly									
JA	0.173	0.858	5.43	4	6.621	0.000	1998.3	0.013	5
ST	0.021	0.009	9.62	4	1.547	0.886	1998.3	0.001	5
FI	0.021	0.029	9.04	4	2.352	1.000	1998.3	0.000	5
AS	0.055	0.092	6.74	4	5.831	1.000	1998.2	0.359	5
Annual									
BE	0.318	0.434	9.81	4	3.270	0.400	1996		
NO	0.000	0.000	24.49	4	7.925	0.583	1998		
SW	0.005	0.137	5.21	4	6.653	0.238	1998		
IR	0.305	0.198	8.98	4	5.492	0.556	1998		

Table B.5
Links Between the US and ROW Models

The data on the variables for the United States that are needed when the US model is imbedded in the MCF model were collected as described in Table B.2. These variables are (with the US subscript dropped): $EXDS$, $IMDS$, M, MS, $M00\$A$, $M00\$B$, PM, PMP, $PSI2$, $PW\$$, PX (= $PX\$$), S, TT, XS, and $X00\$$. The PX_{US} variable here is not the same as the PX variable for the United States in Appendix A. The variable here is denoted $USPX$ in the MCF model. The PX variable for the United States is the price deflator of total sales of the firm sector.

Variable	Determination
$X00\$_{US}$	Determined in Table B.3
PMP_{US}	Determined in Table B.3
$PW\$_{US}$	Determined in Table B.3
PX_{US}	Determined by an equation that is equivalent to equation 11 for the other countries. See the discussion in Section B.6.
$PEX =$	$DEL3 \cdot PX_{US}$. In the US model by itself, PEX is determined as $PSI1 \cdot PX$, which is equation 32 in Table A.2. This equation is dropped when the US model is linked to the ROW model. $DEL3$ is constructed from the data as PEX/PX_{US} and is taken to be exogenous.
$PM_{US} =$	$PSI2_{US}PMP_{US}$. This is the same as equation I-19 for the other countries.
$PIM =$	$DEL4 \cdot PM_{US}$. PIM is an exogenous variable in the US model by itself. $DEL4$ is constructed from the data as PIM/PM_{US} and is taken to be exogenous.
$EX =$	$(X00\$_{US} + XS_{US} + EXDS_{US})/1000$. This is the same as equation I-2 for the other countries. EX is an exogenous variable in the US model by itself. $EXDS_{US}$ is constructed from the data as $1000EX - X00\$_{US} - XS_{US}$ and is taken to be exogenous.
$M_{US} =$	$1000IM - MS_{US} - IMDS_{US}$. This is the same as equation I-1 for the other countries. $IMDS_{US}$ is constructed from the data as $1000IM - M_{US} - MS_{US}$ and is taken to be exogenous.
$M00\$A_{US} =$	$M_{US} - M00\$B_{US}$. This is the same as equation I-8 for the other countries.
$S_{US} =$	$PX_{US}(X00\$_{US} + XS_{US}) - PM_{US}(M_{US} + MS_{US}) + TT_{US}$. This is the same as equation I-6 for the other countries.

• The new exogenous variables for the US model when it is linked to the ROW model are $DEL3$, $DEL4$, $EXDS_{US}$, $IMDS_{US}$, $M00\$B_{US}$, MS_{US}, $PSI2_{US}$, TT_{US}, and XS_{US}. EX and PIM are exogenous in the US model by itself, but endogenous when the US model is linked to the ROW model.

Table B.6
Construction of the Balance of Payments Data: Data for S and TT

The relevant raw data variables are:

$M\$'$	Goods imports (fob) in \$, BOP data. [IFS78ABD]
$M\$$	Goods imports (fob) in \$. [IFS71V/E]
$X\$'$	Goods exports (fob) in \$, BOP data. [IFS78AAD]
$X\$$	Goods exports (fob) in \$. [IFS70/E]
$MS\$$	Services and income (debit) in \$, BOP data. [IFS78AED + IFS78AHD]
$XS\$$	Services and income (credit) in \$, BOP data. [IFS78ADD + IFS78AGD]
$XT\$$	Current transfers, n.i.e., (credit) in \$, BOP data. [IFS78AJD]
$MT\$$	Current transfers, n.i.e., (debit) in \$, BOP data. [IFS78AKD]

When quarterly data on all the above variables were available, then $S\$$ and $TT\$$ were constructed as:

$$S\$ = \quad X\$' + XS\$ - M\$' - MS\$ + XT\$ - MT\$$$

$$TT\$ = \quad S\$ - X\$ - XS\$ + M\$ + MS\$$$

where $S\$$ is total net goods, services, and transfers in \$ (balance of payments on current account) and $TT\$$ is total net transfers in \$.

When only annual data on $M\$'$ were available and quarterly data were needed, interpolated quarterly data were constructed using $M\$$. Similarly for $MS\$$.

When only annual data on $X\$'$ were available and quarterly data were needed, interpolated quarterly data were constructed using $X\$$. Similarly for $XS\$$, $XT\$$, and $MT\$$.

When no data on $M\$'$ were available, then $M\$'$ was taken to be $\lambda M\$$, where λ is the last observed value of $M\$'/M\$$. Similarly for $MS\$$ (where λ is the last observed annual value of $MS\$/M\$$.)

When no data on $X\$'$ were available, then $X\$'$ was taken to be $\lambda X\$$, where λ is the last observed value of $X\$'/X\$$. Similarly for $XS\$$ (where λ is the last observed annual value of $XS\$/X\$$), for $XT\$$ (where λ is the last observed annual value of $XT\$/X\$$), and for $MT\$$ (where λ is the last observed annual value of $MT\$/X\$$).

The above equations for $S\$$ and $TT\$$ were then used to construct quarterly data for $S\$$ and $TT\$$.

After data on $S\$$ and $TT\$$ were constructed, data on S and TT were constructed as:

$$S = \quad E \cdot S\$$$

$$TT = \quad E \cdot TT\$$$

Note from MS and XS in Table B.2 and from $MS\$$ and $XS\$$ above that

$$MS\$ = \quad (PM \cdot MS)/E$$

$$XS\$ = \quad (PX \cdot XS)/E$$

Note also from Table B.2 that

$$M\$ = \quad (PM \cdot M)/E$$

$$X\$ = \quad (E00 \cdot PX \cdot X00\$)/E$$

Therefore, from the above equations, the equation for S can be written

$$S = \quad PX(E00 \cdot X00\$ + XS) - PM(M + MS) + TT$$

which is equation I-6 in Table B.3.